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WOMEN'S INDUSTRIES IN LIVERPOOL

PUBLISHED FOR THE UNIVERSITY OF LIVERPOOL

WOMEN'S INDUSTRIES IN LIVERPOOL

AN ENQUIRY INTO THE ECONOMIC EFFECTS OF LEGISLATION REGULATING THE LABOUR OF WOMEN

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PREFACE

The Preface which Miss HARRISON has asked me to contribute to her essay on the condition of women's work in Liverpool gives me the welcome opportunity of adding emphasis to two or three important points brought into prominence by her investigation. But before proceeding to these it is well to point out the circumstances under which this piece of work was undertaken.

Miss HARRISON was appointed to the post of Jevons Scholar in University College, Liverpool, in 1902, and the enquiries on which is based the account given in this essay were carried out during different visits to Liverpool in the Autumn of 1902 and the Spring of 1903. Her aim, as will be seen, was two-fold: on the one hand, to examine the effects on the industrial position of women occasioned by the restrictions and regulations of the Factory Acts; on the other hand, to give a description of the general conditions of women's work in Liverpool. In respect of the former, she was working at a problem in Liverpool which at the very same time was receiving consideration in its more general aspects by a Committee of the British Association, and her conclusions should be compared with those contained in the Reports of that Committee, published among the Proceedings of the British Association.

Stated briefly, her conclusions may be summed up as follows:—She considers that, so far as Liverpool evidence goes, it would be inaccurate to assume that the Factory Acts have had any marked result on the wages of women's labour or on the willingness of employers to employ them, though in certain instances and directions some slight tendency in this direction may be

detected. But on this subject the reader should carefully follow her account and arguments. Both general conclusions and exceptions deserve notice, for the whole matter is one of great economic interest as well as of immediate importance.

When we turn to the more general criticisms of the conditions holding for women's work in Liverpool, the questions raised are of equal interest. Thus she shows, for instance, how the general industrial characteristic of Liverpool, namely, its pecular irregularity, manifests itself in women's work as well. Outside domestic service and dressmaking, occupations common to all great towns, there is no great staple employment for women. This is not only a fact of importance in itself; but, as Miss HARRISON indicates, it raises an interesting social question. Home discomfort and neglect are traced by many to the outside occupations of women and girls, but in Liverpool the percentage thus occupied is much smaller than in the other large towns of this district. The results of this difference would make an excellent subject for investigation. Again, Miss HARRISON adduces new evidence to show that the practical monopoly of skilled work by men in those industries, where both men and women are employed, is mainly due to the different results of marriage in the case of the two sexes.

This essay is an excellent example of the value of the study of a particular set of economic facts by a trained and careful observer. So far as the University of Liverpool is concerned it will, I trust, prove the first among many like studies published under its auspices, for it is in the scientific investigation of separate groups of facts, either in the present or the past, that the economic student will find his most fruitful field.

E. C. K. GONNER

The writer wishes to express her gratitude to Professor GONNER for much helpful criticism. Her thanks are also due to Miss B. L. HUTCHINS for her valuable aid during the course of the investigation. And she desires to record her indebtedness to the many employers in Liverpool who willingly gave her access to their works and furnished her with information essential to her work.

FACTORY LEGISLATION
AND WOMEN'S INDUSTRIES

I. Historical Introduction

THE legal protection of labour has been gradually evolved from small beginnings, and the legislation regulating women's labour did not, as is sometimes supposed, take shape as an expressly devised system of special protection for women. It has followed as an inevitable result of the regulation of the labour of other classes of workers, and what has happened is that women have been gradually included in the movement for improving industrial conditions generally.

The conditions under which industries were carried on in the latter part of the eighteenth, and the early part of the nineteenth century, are too well-known to need repetition here, and a detailed description of them is recorded in the Parliamentary Reports.[1] There can be no doubt that about the beginning of the nineteenth century the working classes had reached a very low point of want, degradation, and misery. This may be attributed partly to the bad harvests and scarcity of food, partly to the evil effects of the old Poor Law and the

1. See *Report of Committee on Parish Apprentices, Parliamentary Papers*, 1814-15, V; and *Report of Sir Robert Peel's Select Committee on the Employment of Children, Parliamentary Papers*, 1816, III.

Act of Settlement, partly also to the temporary hardships which were the inevitable consequence of the transition to new forms of industry, or the industrial revolution, as it is commonly called. The introduction of machinery, steam power, and the factory system, did not create social and industrial difficulties, but it certainly intensified them.

There is abundant evidence that children worked for unduly long hours in the eighteenth century, both in their own homes and in the Houses of Industry established under the Poor Law, and that they were set to work as early as four, five, and six years of age.[1] But these evils passed unnoticed; indeed the writers of the period considered it desirable that children, from infancy, should contribute something towards their maintenance, and so reduce the poor rates. When, however, very young children were crowded together under insanitary conditions and employed for long hours in the early cotton mills, public attention was drawn to the matter by the outbreak of epidemics amongst the factory population; both medical and educational experts agreed in declaring that neither health nor education was possible under these conditions, and it was recognized that the State was bound to step in to prevent the deterioration of the race.

The first Factory Act, passed in 1802, was for the protection of the 'Health and Morals' of parish apprentices employed in cotton and woollen mills. This Act was of little practical use owing to the indefinite nature of its regulations, and the inadequate provisions for its administration, but its importance cannot be exaggerated, for it amounted to nothing less than an assertion

1. See, *e.g.*, *Gentleman's Magazine*, April, 1739, p. 205. 'Whilst the weaver and his apprentice boy are employed in the loom, if the weaver has a family, a child of four years of age shall, perhaps, quill to the loom, and earn 6d. a week, another of six years of age shall acquire, perhaps, 1s. 6d. per week by spinning.'

that the conditions under which industry was carried on was a matter of national concern, and that it was both the right and the duty of the State to step in to prevent the waste and deterioration of its future citizens by excessive toil under unhealthy conditions.

The Act soon became obsolete. With the introduction of steam power it was no longer necessary to erect mills in close proximity to water; and so the new factories were set up, not as before in lonely country districts, but in the large centres of population, where an adequate supply of 'free' children could always be obtained. Thus children whose hours of labour were unregulated now took the place of parish apprentices, and hence the need for another Act of Parliament, passed in 1819, which prohibited the employment of children in cotton mills under nine years of age, and limited their hours of work to twelve a day.

Over this Bill considerable controversy raged. The manufacturers, with their economic argument that the trade of the country would be ruined, and the political economists, then under the influence of the doctrine of *laissez faire*, joined forces in opposing the proposal to interfere with what was known as 'free' labour. In the Parliamentary debates we also find again and again the fixed idea that it was cruel to prevent or restrict the labour of children, because without it they must starve. This was concisely expressed in a debate of 1833, when it was asserted that the House was legislating on the choice between too much work and too little to eat. Here and there a few more enlightened and far-seeing people realized that the indirect result of employing large numbers of young children was to depress the wages of adults, and that, therefore, a reduction in the family earnings would not necessarily follow a reduction in the hours of child labour.

The Act of 1819 was utterly inadequate to remedy the existing evils, but it established a precedent for the state regulation of 'free' labour, and from that time it was a question of gradually extending the regulations so as to bring under their scope different classes of persons and different industries.

In 1825, young persons up to the age of sixteen were included, and no person under sixteen was allowed to work more than twelve hours a day. The Act of 1831 extended the twelve hours working day to all persons under eighteen, and prohibited night work to all persons under twenty-one.

In 1833, the factory acts were extended to all textile industries. The relay system was introduced for children from nine to thirteen, who were not to be employed for more than eight hours, and the hours of young persons from thirteen to eighteen were limited to twelve a day.

The effect of these regulations was, among other things, to restrict the supply of the cheapest labour, and consequently to increase the demand for the next cheapest. When girls under eighteen might be employed for only twelve hours a day, the manufacturers' resource was to employ women over eighteen, whose hours were unregulated, and thus the inclusion of adult women under the Factory Act of 1844 followed quite naturally and inevitably from the inclusion of young persons by the Acts of 1831 and 1833. It was the factory inspectors who first drew attention to the need of extending the regulations to women. Mr. Horner, in his report for October 1843, pointed out that 'there is a great deal of illegal over-working, that is, that many under eighteen years of age are worked more than twelve hours a day. In many mills they avowedly work more than twelve hours, turning out all under eighteen, a sufficient number

above that age remaining to work part of the machinery. . . . A theorist may say that these people (women over eighteen) are old enough to take care of themselves, but practically there can be no such thing as freedom of labour where, from the redundancy of the population, there is such competition for employment.'[1]

Another influence brought to bear upon this, as on most other developments of factory law, was the resentment of the law-abiding manufacturers against what they considered the unfair competition of those who worked over hours. Sir James Graham, in the debate in the House of Commons over the Act of 1844, referred to the Act of 1833, which, he said, 'enacted directly' that children and young persons should not be worked beyond the limit of twelve hours, 'and when it did so it indirectly fixed the principle that twelve hours ought to be the general limit to the worker of machinery. But that rule was in a manner broken by the instrumentality of female adult labour . . . The restriction which had already been imposed upon the labour of children and young persons had driven those who sought to evade the law in working machinery for more than twelve hours to avail themselves of the lower-paid labour of females, in order to work beyond the limited time.'[2]

Thus he contended that manufacturers who kept their machinery going for more than twelve hours a day were defying the spirit, if not the letter, of the law. This was a rather peculiar position to take up, for the Act of 1833 had been passed on the distinct understanding that it in no way interfered with adult 'free' labour.

The Act of 1844 placed women in textile factories upon the same footing as young persons with regard to

1. *Report of Inspectors of Factories*, 1844, XXVIII, p. 535.
2. *Hansard*, May 3, 1844

hours of labour and general conditions of employment; but the labour of adult men was left unrestricted. There is no doubt that many of the factory reformers, who pleaded in Parliament for the inclusion of women under the factory acts, were impelled chiefly by humanitarian motives, and were convinced that women, being the weaker sex, needed a protection which, if applied to the labour of men, they would have resented as an interference with the freedom of labour.

But an altogether different view was taken by the agitators outside Parliament. The great Ten Hours Movement, which lasted from about 1825 to the passing of the Ten Hours Act in 1847, and was carried on up to 1855 as a movement for placing a restriction on the motive power of machinery, so as to make the limitation of hours a reality, derives its chief interest for the student of economics from the insight it gives into the views of the operatives themselves, and the motives which impelled them to agitate so strenuously for a ten-hours day for children and young persons, and later on for women. The movement was almost entirely a working-class one, and the object of the operatives was to secure shorter hours for themselves; but they realized that a statutory limitation of the working day for adult men was outside the sphere of practical politics, and that there was no chance of getting such a measure passed. Nor was it necessary; for the division of labour characteristic of the factory system, especially in textile industries, makes the skilled male operative dependent upon the complementary labour of other less skilled workers, who perform minor operations, and the operatives realized that if the hours of women, children, and young persons were restricted, such a restriction would involve a similar one on their own hours of work.

After a long agitation the Ten Hours Act was

passed in 1847, but the object of the operatives was defeated by the fact that the ten hours period of employment might be taken any time between 5.30 a.m. and 8.30 p.m. The result was that employers, who wished to keep their machinery at work fifteen hours could do so, by means of men whose labour was unrestricted, assisted by shifts or relays of protected persons.[1] This system was put a stop to by the Act of 1850, which lengthened the hours of work by half-an-hour a day, but made the administration of the law an easier matter by the introduction of a 'normal day'—that is to say the length of the legal working day, or the period during which employment might be taken, was made to coincide with the legal period of employment, together with meal times; and in 1853 the normal day was extended to children, who until that time had been able to work from 6 a.m. to 8 p.m.

After the Ten Hours Act of 1847, together with the Acts completing and amending it in 1850 and 1853, no fresh legislation respecting the hours of labour in textile industries was enacted for twenty years. But during the following years the factory act regulations were extended to certain industries allied to textiles, such as bleach and dye works and lace factories. In 1864, certain non-textile industries were included, and, in 1867, the Factory Acts Extension Act and the Workshops Regulation Act brought under regulation practically all manufacturing processes, whether carried on in factories or in the homes of the workers.

In 1867, the textile trade unionists agitated for an eight hours day, and, in 1872, the delegates of the various societies met together and formed the Factory Acts Reform Association. The eight hours day was deemed to be impracticable, and the programme of the

1. See *Report of Inspectors of Factories*, 1849, XXII, p. 287, etc.

Association was to secure a fifty-four hours week, *i.e.*, nine-and-a-half hours daily, with a half-holiday on Saturdays.

A report drawn up by Dr. Bridges and Mr. Holmes, under the instruction of the Local Government Board, in 1873, produced evidence that since the Factory Act of 1847 there was a tendency for greater pressure to be put upon the work-people, owing chiefly to speeding up and improvements in machinery. In view of these changes in the conditions of employment, it was submitted that ten-and-a-half hours of labour might fairly be considered longer than was consistent with the health of women and young persons. This grievance had become especially prominent since the adoption of the nine hours day by so many of the men's unions in other trades. The result was that in 1873 a Nine Hours Bill was introduced into Parliament. It met with considerable opposition; but in the following year a bill was passed which reduced the hours of work for women and young persons in textile industries from ten-and-a-half to ten hours a day, and thus gave them an additional half-hour for rest and meals.

In the debates over the Act of 1874, we note the beginning of a movement, led by the Women's Rights party, against any restrictions which apply specially to women and not to men. Mr. Fawcett was the mouthpiece of this party in the House of Commons, and in 1874 moved an amendment to exclude women from the operations of the Act altogether, and accused the men's unions of trying to exclude women from employment. The men, as a matter of fact, took up exactly the same position as the Ten Hours men in the thirties and forties; their object was to secure the shortening of their own hours of work by Act of Parliament,[1] but this being

1. See *Cotton Factory Times*, May 26, 1843.

impracticable, the women and children were made the pretext for securing a reduction of working hours for men.

Again, in 1878, a strong opposition was carried on against those clauses of the Consolidation Bill which referred to women, on the ground that the limitation of women's hours was prejudicial to their opportunities of employment. Again amendments were moved to omit the word 'woman' from the various clauses of the Bill. None of these were accepted as far as factories, textile and non-textile, or ordinary workshops were concerned (that is, workshops in which children and young persons as well as women are employed), but in women's workshops (that is, those employing no children or young persons) a more elastic system was permitted. The hours of employment of women, though restricted to ten-and-a-half hours a day, might be taken any time between the hours of 6 a.m. and 9 p.m., and in the case of domestic workshops the word woman was omitted altogether, with the result that the labour of women in domestic workshops was, and is still, entirely unregulated.[1]

The report of the Select Committee on the Sweating System showed that all the evils characteristic of that system, namely, long hours, low wages, and insanitary conditions, were to be found in their most aggravated form in those classes of workshops to which special exemptions had been granted in 1878—namely, in women's workshops and domestic workshops.

The Act of 1891 made an important step forward by requiring that the period of employment in women's workshops was to be a specified period of twelve hours, between 6 a.m. and 10 p.m., instead of leaving it entirely to the will of the employer.

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1. Children working in domestic workshops are restricted to the half-time system, and young persons to ten-and-a-half hours a day. 1 Edw. VII., c. 22, sec. iii.

Looking back at the development of public opinion concerning factory legislation, we find that the opposition to the factory acts has not only lost much of its bitterness, but has considerably narrowed its scope. The regulation of child labour is now accepted by all parties, as also are the regulations affecting men and women equally, The controversy is now confined to those regulations which affect women only, and the opposition is mainly based on the assumption that the restrictions on women's work are prejudicial to their opportunities of employment, and result in the substitution of men for women in some branches of industry. These arguments show the necessity for a thorough investigation into the economic effects of legislation regulating women's labour.

II. An Enquiry into the Economic Effects of Legislation Regulating the Labour of Women in Liverpool

The investigation, the results of which are here recorded, was confined to the district of Liverpool and the neighbourhood.[1] Information as to the effect of the factory acts was obtained from employers of labour, foremen and forewomen, factory and sanitary inspectors, trade union secretaries and others. About seventy factories and workshops were visited, in which the total number of women and girls employed was between twelve and thirteen thousand. The questions were directed so as to obtain evidence as to the economic effects of factory legislation under the following headings: (i) the hours of work; (ii) the division of labour; (iii) wages; (iv) the introduction of machinery; (v) special rules for dangerous trades, and sanitary conditions generally.

In conducting such an enquiry the investigator has to consider not only the effects which bear specially on the position of women, but also the general effects on the industry in question, and the indirect effects upon other classes of workers. The difficulties of management, leading possibly to a decrease in the output, have to be considered; again, the limitation of women's hours may have far-reaching effects in altering the customs prevailing in the industry in question. The shorter hours

1. The writer followed the lines laid down by a Committee of the British Association, which is carrying on a similar investigation over a wider area.

may hasten the introduction of labour-saving processes, and so, indirectly, may result in an entire change in the division of labour, between men, women, young persons and children. The limitation of hours for women may or may not involve a similar limitation on the hours of men. The special effects on the position of women are more obvious. The most general charge brought against the special regulation of women's labour is that the limitation of hours puts them at a disadvantage as regards earning power, compared with men who are able to work an unlimited amount of overtime, and that the difficulties of management, owing to the restrictions on women's labour, may lessen the demand for women as industrial workers, and cause the displacement of women by men. These possible results may on the other hand be counterbalanced by the increased efficiency of women as industrial agents, and this efficiency may be due to all or only to some of the legal restrictions. It is also possible that the supply of women is increased by the offer of better conditions of employment, and that thus a superior class of girls are drawn to seek employment in factories. In all these cases a careful distinction must be drawn between results which are due to factory legislation and those which are due to other causes.

The difficulties attending such an inquiry are obvious. In the first place, there is the difficulty of getting historical evidence as to the working of the factory acts. Comparatively few of the present day factories were in existence before 1867, the year in which most non-textile industries were first brought under regulation. Even in old-established firms, the wages and time books have usually been destroyed, and the number of employers and workers who can accurately record the conditions which prevailed more than thirty-five years

ago is very small. Secondly, there is the difficulty of carefully distinguishing between those changes which are the results of factory legislation and those which are due to other causes. The difficulty of making this distinction is increased by the fact that the factory act limitation of hours has, in the majority of industries, become obsolete as a restrictive force, so far as ordinary hours of work are concerned, and in the best regulated factories the conditions of employment are above the minimum laid down by the factory acts.

An investigation, however thorough, carried on in so limited an area, does not enable the investigator to arrive at definite conclusions as to the economic effects of factory legislation on the whole. All that can be done is to record the facts noted, and to draw from them certain inferences with regard to the effects in particular trades in a particular neighbourhood.

Liverpool is, nevertheless, a remarkably good centre for such an investigation on account of the great variety of trades carried on there.

The first thing which the inquirer discovers about Liverpool is that there is no one important industry, and that there are few large factories. For this very reason the district is perhaps all the more interesting as affording examples of the conditions prevailing in miscellaneous trades. Apart from dressmaking, tailoring, and the clothing trade generally, by far the most important industry in Liverpool and the neighbourhood is the manufacture of tobacco—an industry which has greatly increased in recent years—as may be gathered from the fact that there are now over three thousand girls employed in tobacco factories, whereas forty years ago there were but three hundred and seventy-eight. The other important industries, also of recent growth, are soap making, confectionery, and the

manufacture of jam, all of which are carried on in large factories, many of them newly built and with all modern appliances. There are also two match factories employing nine hundred and fifty girls, and a watch factory employing five hundred and fifty-five girls, and dry-cleaning and dyeing is carried on in a large well-built factory. These factories provide employment for the better class of industrial girls from the time they leave school until the time they are married.

Other important industries are rope-making, sack-mending, and other industries which in the census returns come under the general heading of 'hemp and other fibrous materials.' A large jute factory has been established within the last four years. These industries provide employment for the poorest class, a great proportion of whom are Irish. Many of the women are the wives of men who are at sea for the greater part of the year, and the labour of such women is extremely irregular.

Unlike the textile districts of Lancashire, it is unusual for the more respectable working-class women to go to the factories after marriage. In most of the large well-conducted factories married women are not employed. But, as is pointed out below, in certain lower class industries the proportion of married women is large, and thus the percentage of occupied women in Liverpool who are married or widowed is not below the average for the large manufacturing towns of Lancashire.

The married women who are employed may be divided into two classes:—(i) Those who are skilled workers in some trade which requires long training, and at which the earnings may be good. The one instance of this in Liverpool is cigar-making; (ii) A lower class of women who work irregularly at rough, unskilled work, such as sack-mending, or picking fruit in the jam

season, in order to supplement the earnings of an idle or drunken husband, or to support themselves while their husbands are at sea or out of work. A large proportion of the married women who are occupied, are either widowed or 'deserted.'

Out of a total of 85,058 women returned as occupied in Liverpool, 21,457 are married, *i.e.*, a percentage of 25.2, which may be compared with the following percentages in the other towns of Lancashire which have a population of over 100,000 :—

	Total female population over 10 years of age	Total occupied females over 10	Married or widowed women occupied	Percentage of total female population over 10 who are occupied	Percentage of occupied who are married or widowed
Blackburn -	55,363	31,445	10,708	56·8	34·1
Bolton - -	70,461	30,283	5,411	42·9	17·9
Liverpool -	275,094	85,058	21,457	31·3	25·2[1]
Manchester -	219,630	86,975	22,764	39·6	26·2
Oldham -	58,050	28,049	6,285	43·2	25·1
Preston -	48,583	25,284	7,438	52·0	29·4
Salford -	88,681	33,640	7,919	37·9	23·5
Average - - - - - -				39·3	25·5

1. This percentage is considerably higher than it would otherwise be, owing to the fact that in certain unskilled trades the proportion of married women is large. See *Supra*, p. 18, also p. 21.

The following table shows the proportion of married and unmarried women in the principal industries investigated. The industries are arranged according to the percentage which the occupied married women form of the total number of women engaged in the particular industry :—

Industry	Unmarried	Married	Percentage of occupied who are married
Cotton - - - - -	193	204	51·6
Shirtmakers, Seamstresses - -	834	618	41·9
Hemp and other Fibrous Material*	1,005	629	38·4
Tailoresses - - - -	2,261	860	27·5
Milliners, Dressmakers - -	6,835	1,425	17·3
Oil, Grease, Soap, Resin Workers*	777	103	11·7
Tobacco Manufacture - -	2,821	334	10·6
Food Workers - - - -	1,692	179	9·6
Paper Box, Bag Manufacture Stationery Manufacture -	949	97	9·3
Bookbinders - - - -	730	72	8·7
Bleaching, Printing, Dyeing, etc.*	175	9	5·4
Printers, Lithographers - -	292	13	4·3
Explosives and Matches* - -	296	9	2·9

* Bootle included.

Robert Baker in his report for 1873 gives the percentage of married women to those employed in the counties of Lancaster and Stafford (including Birmingham). He selected thirty trades of which the following are the principal ones found in the neighbourhood of Liverpool :—Cotton, 26·5 per cent. ; Bookbinding, 4 per cent. ; Cigars, 15 per cent. ; Lucifer Matches, 25 per cent. ; Paper Bags, 10 per cent. ; Rope and Twine, 51 per cent. *Report of Inspector of Factories*, 1874, XIII, p. 123.

It will be seen from this that those industries in which more than the average number of married women are employed are such industries as (i) cotton, in which a long training is necessary, good wages earned, and in which trade it is more or less 'the fashion' for women to continue work after marriage;[1] (ii) shirtmaking and tailoring, in which much of the work is done in small domestic and other workshops; (iii) hemp and other fibrous materials, this includes rope making, the mending of sacks, etc., in which trades old married women work more or less irregularly at unskilled branches of the work. About fifty per cent. of the women in sack-mending warehouses are married.

The following table opens up a very interesting question as to the reason why the percentage of unmarried women and girls over ten years of age, who are occupied, is so much smaller in Liverpool than in other towns of Lancashire. The difference would be even greater if the number of those employed in domestic services were subtracted:—

	Percentage of unmarried females over 10 who are occupied	Proportion of female indoor domestic servants to total number of occupied and unmarried females over 10
Blackburn - - -	76·5	9·5
Bolton - - -	71·7	12·2
Liverpool - - -	50·2	36·3
Manchester - - -	63·3	18·2
Oldham - - -	70·4	11·4
Preston - - -	73·8	11·7
Salford - - -	62·6	20·3

1. Cigar making would also come under this head, but no separate figures are given in the census returns for cigar making as distinguished from tobacco manufacture.

There is no doubt that the occupations of women are largely determined by custom. One employer, comparing Liverpool with the textile districts of Lancashire, remarked that in Liverpool it is not the 'fashion' for girls to work; 'it is considered a disgrace for a girl to have to earn her living.' An interesting subject for investigation would be the effect upon home life of the small proportion of girls engaged in manufacture.

We may now turn to consider the economic effects of the factory acts under the special headings of (1) the hours of work, (2) the division of labour, (3) wages, (4) the introduction of machinery, (5) the special rules for dangerous trades, and sanitary conditions generally.

(1) *Hours of Work.*

The most valuable information in connection with the effects of the Factory Acts on the hours of work would be to know what change was actually made by the Factory Acts of 1864 and 1867. In 1864, three tobacco factories, one lucifer match, and one paper staining factory in Liverpool were brought under regulation. In 1868 there were altogether two hundred and fifty factories[1] in Liverpool to which the Factory Acts Extension Act of 1867 applied.

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1. These included the following factories :—
   113 Where metal was dealt with in various processes.
   62 Letterpress printers and bookbinders.
   14 Tobacco manufactories.
   9 Sugar refineries.
   3 Glass works.
   2 Rice and flour mills.
   1 India-rubber factory.
   1 Oil mill,
   1 Distillery,
   1 Tanning establishment,
   2 Chemical works,
   4 Millinery and dressmaking establishments,
   2 Cabinet makers,
   } Where more than fifty hands were employed.
   Report of Inspectors of Factories, 1868-9, XIV., p. 373.

Did the Acts of 1864 and 1867 introduce changes in custom in the various industries then brought for the first time under regulation, or did they merely enforce what was customary before? It is impossible to give any general answer to this; but in the case of certain industries evidence is given in the Report of the Children's Employment Commission as to the number of hours and general conditions prevailing in 1863.

The Factory Acts of 1833 and 1844 had been construed to apply to rope works; but in 1846[1] an act was passed to exempt certain classes of ropewalks from the factory act regulations. At the time the Act of 1846 was passed, the aid of steam had not been used in drawing or spinning, these processes being wholly performed by hand wheels. The result was an anomalous state of things. The general use of machinery for drawing and spinning brought some of the largest ropeworks wholly or in part under the factory acts, but there were in 1866 many such works to which the Acts did not apply. This was the case not only where they had no machinery at all, but also where it was used only for laying, forming, or finishing the fibre which had been before drawn and spun by hand, or by machinery in a separate building.[2]

In Liverpool rope making was carried on upon an extensive scale, and there were six ropeworks under inspection before the Act of 1867. The Act of 1867 brought all ropeworks under regulation; but with regard to ropeworks in which less than fifty hands were employed the regulation was merely nominal.

Before 1867, the usual hours in ropeworks were from 6 a.m. to 7, sometimes to 8 and 10 p.m. The hours

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1. Rope works Exemption Act, 9 and 10 Vict: c. 40

2. See *Report on Ropemaking*, by H. W. Lord. *Children's Employment Commission. Fifth Report* 1866, *XXIV*, *p* 114.

appear to have been very irregular. The cause of the long hours was that the men were usually idle for the early part of the week, and had to make up their earnings by working long hours towards the end of the week.

Mr. Ewings, sub-inspector for the Liverpool district, writing in 1863, drew attention to the 'unreasonably long hours' worked by children and women in ropeworks.[1] Mr. Baker reported, in 1869, 'There are in Liverpool, seven or eight of the larger roperies under the old act with regard to their spinning sheds, or under the Extension Act of 1867 by reason of employing more than fifty hands, but there are a great number of smaller ones, where women, young persons, and, I am told, children, are extensively employed, and which, owing to the difficulties of administering the Workshops Act, have, up to the present time, been practically under no law at all. I have been credibly informed that it is no uncommon practice to see children turned out of their beds at three in the morning and sent to the walks. A lamp is slung round their neck, and they start away on their day's work, which often does not cease till 6 p.m.'[2]

In sack-mending warehouses about five hundred or six hundred women were employed making and mending sacks. The usual hours were from 7 a.m. to 6 p.m. One employer, who gave evidence before the Children's Employment Commissioners, said:—'In some places like ours they work very late occasionally, sometimes all night, but it is not the practice of the trade to do so.'[3]

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1. *Ibid*, p. xiii.

2. *Report of Inspectors of Factories*, 1870, XV, p. 334.

3. One forewoman told the present writer that thirty-four years ago the hours in sack warehouses were from 7 to 7—Saturdays, 7 to 4—and when busy up to 9 and 10 p.m. every day.

In the tobacco factories the usual hours of work were from 7 to 6 or from 8 to 7. But two hours overtime was frequently worked. In one cigar factory in Liverpool, in 1861, work was continued until 9 p.m. every day from August to December, without any time being allowed for tea.[1]

In the printing trade the regular hours, in the early sixties, were from 8 a.m. to 7 p.m., but as this trade is one liable to sudden orders, a great deal of overtime was worked. One employer, giving evidence before the Children's Employment Commissioners, said :—'I should say we made nearly eighty hours a week for the whole of last year.'[2]—and this appears to have been no isolated instance.

In bookbinding and stationery the only instances given are one in which the hours were fifty-nine, and the other fifty-six per week,[3] and overtime seems to have been unusual even then.

In the india-rubber factories 'the regular factory hours, twelve in the day with one-and-a-half for meals,' were said, in 1863, to be always observed in Liverpool, whilst in Manchester and London the hours were not unusually from 6 to 8 and 9 p.m.[4]

In the busy season (early autumn) about six hundred women were employed in pickling. The normal hours of work were from 7 to 6, but it was stated that sometimes they began work at 5 a.m., and that occasionally they worked fifteen or even eighteen hours a day.[5]

In the wholesale clothing trade, according to the

1. See *Report on the Tobacco Manufacture in Lancashire*, by H. W. Lord, 1865, XX, p. 88.
2. See *Fifth Report of Children's Employment Commissioners*, 1866, XXIV, p. 57.
3. *Ibid*, p. 60.
4. H. C., 1865, XX. *Fourth Report of Children's Employment Commissioners*, p. 257.
5. *Fifth Report of Children's Employment Commissioners, Parliamentary Papers*, 1866, XXIV, p. 238.

evidence given by an employer to the present writer, the ordinary hours of work forty years ago were from 8.30 to 7.30, with one-and-a-half hours for meals; on Saturdays 8.30 to 4, with one hour for dinner.

It would seem then that although great irregularity prevailed, and in times of pressure employers kept their employees at work for any length of time they liked, yet even before 1867 the normal hours of work were within the limits of what were known as 'factory hours'; and that since that time the reductions made in the normal hours of work are not to be ascribed to the factory acts, but to the manufacturers themselves, who, in many cases, recognize the economy of short hours; and to trade union action.

It is difficult to assign any reason for the short hours which have evidently long been prevalent in Liverpool.[1] Employers ascribe it to the fact that Liverpool has never been a large industrial centre. The connexion between the two things is not obvious. It may be that in a city like Liverpool, where much of the labour is casual, and where, as one employer remarked, 'it is not the fashion for girls to work,' there is not the same amount of competition. Whatever may be the cause, the fact is clear that the normal hours of work are now well within the factory act limitation. The factory inspectors say that they have little difficulty in enforcing the regulations as to hours—'The employers object to overtime, and never work overtime unless it is absolutely necessary.'

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1. For further evidence on this point see *Fifth Report of Children's Employment Commissioners*, 1866, XXIV, p. 69. Mr. Hugh Shimmin, bookbinder, gave evidence as follows:—'I do not think that the practice of working long hours prevails to any serious extent in Liverpool.' Also *Report of Inspectors of Factories*, 1870, XV, p. 335:—'I have reason to believe that the law is very generally recognized in Liverpool.'

The usual hours of work are from 8 a.m. to 6 or 6.30 p.m. In the tobacco factories the hours are from 8 to 6, and on Saturdays 8 to 12.30, *i.e.*, fifty hours a week. None of the employers could remember the hours having been any longer, and they could give no reason for the short hours except that it is the custom of the trade.[1] The cigar makers, who are paid at piece work rates, often come later and leave earlier than the other employees.

In other industries also (with the exception of textiles) the employers in the largest factories are firm believers in short hours, as the following examples will show.

Soap Factory No. 1. Hours 8 a.m. to 5 p.m., or forty-five hours per week. The men in this factory work forty-eight hours. During the busy season the girls occasionally remain until 7 p.m. Prior to 1897 the hours were fifty per week. The reduction has been made voluntarily by the employers.

Soap Factory No. 2. Hours 8.30 a.m. to 5 p.m. Saturdays 8.30 to 12.30. The piece-workers are allowed to leave as soon as they have got through a certain amount of work, that is about 4 p.m. Work is never carried on after 5 p.m., and though the firm has been established for thirty years the hours have never been any longer.

In a large factory, where dry-cleaning and dyeing is carried on, the hours have been reduced from fifty-six to fifty-three, and then to forty-eight per week. These successive reductions have been made by the employers themselves, 'not from any philanthropic motives, but entirely from a business point of view,' because they knew that 'the work-people put more

1. This evidence is substantiated by the *Report of the Factory Inspectors*, 1868-9, XIV, p. 185, in which it is stated that the usual hours of work in tobacco factories in Scotland were not more than ten, and in London not more than nine a day.

energy into their work and take more interest in it if their hours are short.'

In the confectionery trade the hours are generally fifty-two-and-a-half a week. The period of employment varies from 7.30, 8, or 8.30 a.m. until 6, 6.30, or 7 p.m.

In the match factories the hours are somewhat longer, namely from 7 a.m. to 6 p.m.

The printing and stationery trade is an example of one in which the hours have been reduced through the action of the men's trade union. The hours are now fifty-one, having been reduced gradually from fifty-nine hours a week.

The women upholstresses have a small but strong trade union, which has succeeded in reducing the weekly hours from fifty-five (ten years ago) to fifty. The upholstresses in the shipping firms work only forty-five hours a week. Their work is dependent upon that of the joiners, who leave off at 5 p.m.

In the wholesale clothing trade the hours vary in the four factories visited :—*No.* 1, 8.30 to 6 ; *No.* 2, 9 to 6.30 ; *No.* 3, 8 to 6 ; *No.* 4, 8.30 to 5.30.

On Saturdays, work ceases at 1 or 2.30 p.m.

The employer in an old-established firm said that the hours had been greatly reduced, but not by the factory acts. About forty years ago the usual period of employment was from 8.30 a.m. to 7.30 p.m. (with one-and-a-half hours for meals), and on Saturdays from 8.30 to 4.

In the dressmaking trade the hours are usually from 9 a.m. to 8 p.m., and on Saturdays, 9 a.m. to 4 p.m.

In the Jewish tailors' workshops the hours are from 8 to 8 for five days in the week, and from 8 to 4 on Saturdays or Mondays.

In sack-mending warehouses the usual hours are from 8 to 6, or when busy from 8 to 7.

The textile factories are the only instances of factories in which the ordinary hours of work extend over the whole of the legal working day. In all the rope works visited the hours are from 6.30 to 6, with one-and-a-half hours for meals. In a large jute factory the hours are from 6 to 5.30; in a lint factory, from 6.30 to 6. The interesting question arises, how it is that though in texile industries the *legal* hours are shorter than in other industries, yet the actual hours of work are usually longer? This appears to be largely due to an unexpected effect of the Act of 1874, which required an additional half-hour for meals and rest in textile factories. In non-textile factories and workshops an interval for meals and rest must be given every five hours. Suppose that work begins at 8 a.m. and that the dinner hour is from 1 to 2, then instead of working from 2 to 8 with an interval of half-an-hour for tea, it is found to be more economical to cease work altogether at 7 p.m. Whereas in textile factories, where an interval of at least half-an-hour must be given every four-and-a-half hours, it is considered worth while to keep the engines going, and to begin work again after the second interval has been given.

So far, we have been considering only the normal or ordinary hours of work; and though these are in most cases well within the legal limit, it by no means follows that the factory act limitation of hours is useless or obsolete. In the unregulated industries, before 1867, the great evil was not so much the length of the ordinary working day, as the irregularity of hours and the long spells of work in times of pressure. The same thing applies in the present day. The

enlightened manufacturer may have reduced his hours below the legal limit, and may firmly believe that it does not pay to work up to the full limit allowed, and yet in times of pressure, due to seasonal fluctuations, or to large orders, the legal limitation makes itself felt as a restrictive power.

In considering overtime, a clear distinction must be drawn between the overtime which is merely an extension of the ordinary hours of work, while keeping within the limits of the legal working day, and the factory act overtime which is permitted in certain trades[1] provided due notice of the fact is sent to the district factory inspector. The first kind of overtime is found in practically all trades in which in ordinary times the hours of work are less than the legal maximum.

For example, when busy, the tobacco workers, who usually leave off at 6 p.m., are kept at work until 7 p.m., but this is quite exceptional, and in only one factory is work ever carried on until 8 p.m.

In one soap factory, where work at ordinary times ceases at 5 p.m., the girls are kept till 7 p.m. during the busy season. In another soap factory, the piece-workers, instead of leaving when they have done a certain amount of work, are allowed to stay till 5 p.m. and earn as much as they can.

In the confectionery trade, it is usual to work an hour longer per day in winter.

In the trades in which two hours overtime is permitted under certain conditions, the list of reports of overtime sent to the factory inspector, shows that in 1901 overtime was worked 5,055[1] times. By far the largest number of times (namely, 3,815) was in factories and

1. See Act of 1901. Schedule II.

1. Similar figures in previous years were :—In 1896, 4,657 ; 1897, 4,570 ; 1898, 4,979 ; 1899, 5,354 ; 1900, 5,092.

workshops where the making up of articles of wearing apparel is carried on. In the dressmaking and tailoring trade full advantage is taken of the permission to work overtime, and employers complain that they are limited to thirty days in the year. In the wholesale clothing trade, on the other hand, with the introduction of machinery, there appears to have been a gradual diminution in the amount of overtime. One employer, who has introduced electric power to work his sewing-machines, gave figures showing that the average number of days on which overtime had been worked during the last four years was only seventeen.

The restriction on overtime employment is rarely if ever felt as a grievance in large and well-organized factories. In these the overtime, if worked at all, is usually well within the limits of the legal working day. One employer in a large factory said that during the years 1893-5 they used to work overtime, but this was necessary only because in those days the business was badly managed. The trade in question is 'as much a season trade as it is possible for any trade to be, but with good management there is no need for overtime. The thing is to keep a large enough staff of employees.'

Evidence to the same effect was given by a foreman in a tobacco factory to the Commissioners of 1864:—'As to overtime, you may depend upon it that nearly all of it is caused by want of space. . . . rather than by want of time. You can't have more than a certain number in one place, and if you are full, and have more work than your hands can get through in the day, they must work longer; that is all.'[1]

It is in the small factories, where there is no room for extra hands, that the chief complaints are made with

1. *Parliamentary Papers*, 1865, XX, p. 91

regard to the restrictions on overtime employment. This is particularly noticeable in the confectionery trade. In the large factories, extra hands are taken on in the busy season, and the packers, who work in a separate room, are employed overtime; but in the small factories there is no room for extra hands, and as the packing is usually done in the same room in which the manufacturing process is carried on, no advantage can be taken of the permission to work overtime. This was described by one employer as 'very irritating.'

The small job printing firms are liable to press of work, arising from orders which have to be promptly executed, and in many cases the full limit of overtime is worked.

Several employers in small printing firms complained of the restrictions on overtime employment. In one firm, employing fifteen girls, it was said that several years ago the restrictions had been found 'most oppressive,' especially in the making of time-tables. Copies of the time-tables were not received until the 28th, and had to be ready by the end of the month. There was 'always a rush at the end of the month, and the work had to be got through somehow.' In one of the largest printing firms, on the other hand, the foreman did not think that they had worked overtime on more than three occasions during the last five years.[1]

In the small workshops where girls are employed enamelling copper letters, the employers feel the restrictions, and consider it to be unfair that they cannot employ girls overtime, whilst dressmakers and milliners can do so.

The employer in a match factory finds the limitation of hours 'very harassing.' The factory is a small

1. Many of the large printing firms print newspapers, and have such a quantity of machinery that overtime is rendered unnecessary.

one and there is therefore 'no room for extra hands.' He considers that 'the British Government is doing all it can to ruin the trade of the country, as the regulations are not so stringently enforced in America and other countries.'

The most formidable opposition to the limitation of hours was met with from both employers and work-people in a large watch factory, where 555 girls and 585 men are employed. From the information given it appears that the watch-making industry is peculiar, in that it is impossible to lay up a large store of goods in readiness for possible orders. The orders are always for particular kinds of watches, and, in many cases, the name of the firm for which they are ordered has to be put on the face of the watches. Moreover, the work of the men and women is so interdependent that the men cannot work late unless the women do so—*e.g.*, each jointer (man) has a girl to assist him. Occasionally men do women's work during overtime, but the work done by the girls requires such light handling that it is impossible for men to do it as efficiently. In some rooms it is quite impossible for the work to go on after the girls leave. The whole prosperity of the district depends upon the watch factory, but this is said to be 'endangered by the fact that they cannot meet orders without defying the law.'

The above cases are the exceptions to the general rule that both employers and employees object to overtime, as it 'pays neither master nor man.' Even employers who occasionally feel inconvenienced agree that on the whole the limitation of hours is beneficial. The manager at one of the largest soap factories said that when they have been busy, and have worked full time (ten-and-a-half hours) for some days 'it begins to tell upon the girls. They turn up late next morning,

and there is in consequence a decrease in the output.' The foreman in some large confectionery works finds that 'in nine hours you get as much work out of the girls as there is in them.'

It is not easy to arrive at the opinion of the workers themselves. This naturally varies both in the case of individuals and different classes of workers. The members of the upholstresses' trade union object to overtime, unless they have lost time during the previous week, in which case they are glad of the opportunity to make up their earnings to the average amount. The girls in the watch factory and in a small printing firm expressed their eagerness to work overtime whenever they could.

In the more badly paid industries, as a rule, the girls do not think it worth while to work longer in order to add a few pence to their wages. That the women and girls themselves, on the whole, are not anxious for long hours is shown by the complaints made by manufacturers of rope, jute, wholesale clothing, tin canisters, and sacks, about the irregularity of the workers.

Perhaps the most interesting question with regard to the restriction on overtime employment is as to how far the restriction of overtime in the case of women involves a similar restriction in the case of men. In some few cases the work of men and women is so entirely distinct that the men's work can be continued after the women leave off without any inconvenience, but in the majority of industries, especially in those in which complicated machinery is used, the work of the men is dependent upon that of the women, and the men's work can only be continued if, after the end of the legal working day, the women's work is done by men. This is an expensive

system, owing to the very much higher wages paid to men, especially during overtime, and is only resorted to in cases of great pressure, and of course in many cases it is out of the question, owing to the fact that so often women's work is essentially women's work and cannot be performed by men.

The ordinary hours of work of the men are almost invariably the same as those of the women, though occasionally in rope works the women's machines stop half-an-hour earlier than the men's, so as to allow time for cleaning the machines before the end of the legal day. In one of the lucifer match factories the nature of the process requires that the men's work should begin and end two hours before that of the girls. In the jute and the lint factories, on the other hand, the men invariably stop work at the same time as the women.

In cases where the men's work is not entirely dependent upon that of the women, there is no doubt that the limitation of women's hours has but little, if any, effect upon the men's hours, *e.g.*, in the rope factories, where men are employed at the actual rope-making and preparing by hand, whilst women mind the preparing, carding, and spinning machines, rope-making is often carried on after the spinning machines have stopped. The time book at one factory showed that in a recent week men had been working for sixty-nine hours.

The following are the only instances found in which women's work is carried on by men after the end of the normal day. (i) in rope factories, very occasionally, men continue the women's work after 6 p.m., but this is found to be a 'dead loss' to the employer; (ii) in small printing firms it is not unusual in the case of big orders for men to do the folding and sewing and laying on, etc., after the women leave off work; (iii) in the

watch factory, referred to above, occasionally men do women's work during overtime, but the work done by the girls requires such light handling that men cannot do it satisfactorily.

On the whole, it appears that the ordinary hours of work for men are regulated by the hours of work for women, except in certain cases, *e.g.*, the printing trade, where the women's hours are determined by the men's trade union regulations. But, as has been pointed out, it sometimes—though not often happens—that men do women's work during overtime.

In one respect, the Factory Act regulations as to overtime appear to lead to a certain amount of irregularity of employment. In large factories, where there is plenty of accommodation, any press of work can be met by taking on extra hands. In processes which require skill and experience this is impossible, but great irregularity of employment prevails in unskilled work, such as the wrapping of soap, and the packing of sweets and cigarettes. The greatest variation in the numbers employed takes place in the jam, soap, and tobacco factories. In one soap factory the number of girls employed varies from 540 to 730, in another from 950 to 1,450. In one tobacco factory the numbers vary from 350 to 750.

Of course it is impossible to get any evidence as to how much of this irregularity would be obviated if an unlimited amount of overtime were permitted, but there is no doubt that while recognizing the good effects of the factory acts in making the hours of work more regular, we must not lose sight of the fact that these regulations as to hours do, to some extent, lead to irregularity of employment.

2. *Change in the Division of Labour, as between Men and Women*

In considering the changes which have taken place with regard to the division of labour it is most important to trace the change back to the ultimate cause. Employers, if asked what effect the Factory Acts have had on the division of labour, invariably reply that they have had no effect whatever, and that all the changes which have taken place are due to other causes. Upon further investigation, however, it is often found that the changes may be traced to the regulations imposed by the factory acts, but that these have acted indirectly, and that the more direct cause is the introduction of machinery.

It is a common thing for those who have no intimate knowledge of industrial conditions to suppose that there is continual competition between men and women, and that the least inconvenience attending the employment of women leads to their being displaced by men. But, as a matter of fact, men's work and women's work are usually quite distinct. Men and women are engaged either at different processes, or at different branches of the same process, and any substitution of one for the other usually comes only through changes in the methods of carrying on the industry, and is most often directly due to the introduction of machinery, which has two opposite tendencies with regard to the distribution of employment[1]; it may lead to simplification of labour, in which case men are usually displaced by women, or it may involve, in some branches, far greater skill than before, in which case highly skilled workers are substituted for women and girls.

1. See *The Effects of Machinery on Wages*, by J. S. Nicholson, p. 90.

The statistics collected by Mr. Charles Booth and Miss Collet show that on a large scale the proportion of men and women employed undergoes very little change. In 1886, Mr. Booth pointed out that from 1851 to 1881 the proportion of industrially employed women over fifteen, compared with the rest of the female population, had decreased continuously, but that the proportion of those otherwise employed, in domestic service, teaching, and so on, had increased in an equal degree year by year, so that the total proportion employed one way or another remained practically constant.[1] The figures given by Mr. Booth also show that during the same period no appreciable change took place in the proportion of women to the whole number of persons employed. In 1851, the total number of occupied females over fifteen numbered 2,553,000, and occupied males, 5,876,000. Similar figures for 1881 are 3,603,000 and 8,110,000, Thus, in 1851, women formed 30·2 per cent. of the whole number occupied, and in 1881, 30·7 per cent. Mr. Welton has calculated that between 1851 and 1891 the proportion of women to the whole number of persons employed increased only rather more than 1 per cent.[2] Miss Collett's report on the Statistics of Employment of Women[3] showed that the increase of women and girls returned as occupied was only four per thousand between 1881 and 1891. These figures show that there is little danger of men being substituted for women, or *vice versa*, on any large scale. The employment of men has increased in the construction of machinery, in the metal and building trades, which are essentially men's trades; whilst the employment of women has increased chiefly in those industries which

1. *Journal of Royal Statistical Society*, June, 1886, p. 322.
2. *Manchester Statistical Society*, March, 1898, p. 160.
3. *Parliamentary Papers*, 1894, LXXXI, Part II.

are essentially their own, such as domestic service, dressmaking, and millinery. Women have made their way into many new industries, but it is still true that nearly as many women are employed in domestic service as in all the manufacturing industries together. Still, while recognizing that different industries and different processes of the same industry may be divided into those which are, as a matter of course, carried on by women, and those which, as a matter of course, belong to men, there yet remains an interesting debateable ground where things are more or less uncertain, and where any slight change in the methods of industry may cause women to be substituted for men, or *vice versa*. Here and there we even find that men and women do identical work, and the question as to who shall do it is decided either by women offering themselves for lower wages, or by the opinion of the employer as to the special aptitude of men and women for the particular branch of work.

On the whole, women's work tends to run in two different channels; the one being occupations which require light handling and a certain amount of skill which is gained by a few month's experience, the other being the work that is so hard and badly paid, and requires so little skill, that no man could make a livelihood out of it. In such cases, women seem often to be employed in a special branch of work, less because of their special aptitude for the work, than because of their proneness to accept what is less than a living wage.

A factor which enters very largely into the consideration as to whether men or women shall be employed for particular processes is the amount of skill and length of training required. As a general rule the highly skilled work is done by men. And the reason is not far to seek. Employers find that it does not 'pay' to teach

highly skilled processes to girls. Some interesting information on this point was given by a large employer of labour near Liverpool, who is strongly of opinion that the real thing which keeps women out of the most skilled branches of work, is the fact that they do not look upon their trade as their life work, but almost invariably leave after a few years to get married. Girls do not expect to remain in a trade for more than a few years, and so do not take their work seriously, they will not submit to the severe training required to make them skilled workers, and it is, therefore, useless to teach them processes which require long training. The same employer gave several examples of work eminently suitable, from its light nature, for women, from which they are excluded owing to the fact that they would give it up just as they were beginning to be of some use. Examples of this are the remodelling of straw hats, and the glazing of chintz and cretonne. Another example of the same kind was given in a tobacco factory, where men are employed to 'sort' the different shades of cigars.[1] This requires a trained eye to distinguish the shades. The manager has again and again tried to train girls to do it, but with no good result. Out of about thirty attempts not one has succeeded. The girls either will not take the trouble to learn or they leave to get married as soon as they begin to be of use.

1. In some cigar factories in Liverpool girls are employed for this work.

The following figures were given by one employer to illustrate the fact that girls remain only a short time as compared with men :—

	1892 10 years ago	1897 5 years ago	1899 3 years ago
Number of female workers employed - - -	86	115	212
Number of above still employed at same factory in 1902 - - -	6	24	109
Percentage remaining - -	7	22	51
Similar percentages for men and boys - - -	42	64	61[1]

The employer who gave the above figures said 'the difference between the sexes in the matter of employment, as far as our experience goes, is that boys up to the age of sixteen come and go with great frequency ; after that age they remain permanent fixtures. With girls it is exactly the opposite. From fourteen to eighteen a very large proportion remain ; after that age they are continually leaving, generally to get married, or for other domestic reasons.'

1. The reason for the decrease here is that three years ago a number of small boys were taken on, and were found unsatisfactory for the purposes for which they were engaged ; they were dismissed, and consequently brought down the average.

The following table shows the percentage of women employed in the chief industries at different age groups :—

Industry	Percentages at different age groups					
	Total number of females employed	10-15	15-25	25-45	45 & upwards	Percentage of occupied who are married
Bookbinders - - -	802	10	67	18	5	8·7
Printers, Lithographers -	305	9	80	8	3	4·3
Paper Box, Bag Makers, Stationery Manufacture -	1,046	8	72	18	2	9·3
Explosives and Matches* -	305	10	84	6	0	2·9
Soap Boilers and Makers, etc.*[1] - - - -	880	3	68	25	4	11·7
Hemp and other Fibrous Materials* - - -	1,358	1	50	33	16	38·4
Cotton - - - -	397	0	33	48	19	51·6
Bleaching, Printing, Dyeing, etc.* - - - -	184	2	79	14	5	5·4
Tailoresses - - -	3,121	4	53	28	15	27·5
Milliners and Dressmakers -	8,260	3	50	34	13	17·3
Shirtmakers and Seamstresses	1,452	3	32	28	37	41·9
Tobacco Manufacture -	3,155	9	71	17	3	10·6
Food Workers - - -	1,871	3	76	17	4	9·6

1. This includes india-rubber and gutta-percha workers.
* Bootle included.

Not only do women lose their opportunities of doing really skilled work by the fact that they do not, as a rule, remain long enough to make themselves proficient, but the few who do remain are unwilling to take up positions of responsibility. Several instances were met with in which employers had endeavoured to place women in positions of responsibility as forewomen, but had found them quite unsuited for it, and the women themselves had preferred regular work without responsibility at fourteen shillings a week to the position of forewoman at twenty-eight shillings.

In most trades in which women are employed in Liverpool there is no competition whatever between men and women; the manufacture of tobacco, cigar making, lucifer match making, the enamelling of copper letters and discs, cap making, paper bag making, dressmaking and millinery are almost entirely women's trades. In jam, soap, and paint making, and in confectionery, the manufacturing process is done by men, but girls are employed for packing, labelling, etc., and for the lighter branches of the work. In rope making the preparing, carding, and spinning machines are tended by women, and the men do the actual rope making. In jute also, all the spinning and weaving is done by women. Men are employed only for the heavy work, such as calendaring, packing bales, etc. In the manufacture of lint all the weaving is done by girls, and men are employed for bleaching and carding. In india-rubber works men do the early processes of preparing, washing, and cleaning the new india-rubber; they also do the cutting out. The women are employed in cementing, lasting, and making up the shoes. Thus in most industries the demarcation between men's work and women's work is clear and impassable, but in those trades in which changes in the division of labour have taken place, the

tendency has been for the proportion of women to increase.

The following table shows the changes in the distribution of employment which have taken place in the principal industries in Liverpool in which there is any competition between men and women, from 1861 to 1901, according to the census returns :—

Occupation	Percentage of Women and Girls over 10 years of age of the total number employed.				
	1861	1871[1]	1881	1891	1901
Bookbinders - - -	50·9	...	67·9	69·4	70·6
Printers (including Lithographers) - - -	·2	...	3·3	5·6	9·7
Explosives, Matches -	...	...	79·1	89·4	75·9
Soap Boilers and Makers -	...	...	53·5	64·2	62·5
Rope, Twine, and Cord Makers - - -	7·8	...	28·3	51·8	53·3
Canvas, Sailcloth, Sacking, Net, Hemp, Jute, and Cocoa Fibre - -	72·3	...	85·0	85·1	86·3
Tailors - - -	16·4	...	33·2	48·3	53·8
Confectionery - -	66·5	...	69·3	74·9	...
Tobacco - - -	62·2	...	75·7	77·2	79·9
Tin Manufacture - -	...	...	·8	4·7	...
India Rubber - -	...	...	46·6	49·3	63·5

1. The census returns for 1871 give only the numbers of persons employed over twenty years of age. The figures are, therefore, useless for the present purpose.

The large increase in the proportion of women employed in the manufacturing of hemp is due to the introduction of machinery. The machines for spinning hemp, preparatory to rope making, are all tended by women; whereas in the old days of hand spinning the spinners were chiefly men. In the factories where some hand spinning still survives, one of the very rare instances is afforded of a process in which men and women do identical work; but it appears that though they work on the same material, the men turn out rope of a better quality, which sells at a higher price. In one process, namely, the heckling or dressing of the hemp by hand, men have taken the place of women. The work consists in dragging the material, hemp, old rope, etc., over strong iron spikes, and requires much strength; strong girls of seventeen and eighteen used to be employed, but now it is considered unsuitable for any but men.

The large increase in the proportion of women employed in the tobacco industry is ascribed to the following causes:—(i) Women cigar makers have entirely taken the place of men, since a strike of the latter in 1865 for higher wages. The first women cigar makers in Liverpool were in 1850; (ii) the growth of the cigarette trade, as compared with the trade in heavy tobaccos, in recent years, has called more women into employment; (iii) with the introduction of machinery for the rolling of plug and twist tobacco, girls have taken the place of men as 'spinners.'

This latter is an interesting example of the indirect effect of factory legislation on the division of labour. When done by hand the process of spinning required both skill and strength, and was done exclusively by men, who rolled the pigtail at long narrow tables, at the end of which was a small wheel. These wheels were

turned by little boys, who were employed all day long and for very long hours. Mr. Cope, writing to one of the factory inspectors in 1868, says:—'You will, we think, be much gratified to learn that in this factory we have been enabled to put an end to the cruel system of employing young people in turning the spinning wheels in the twist department. Our wheels are now moved by the steam engine. The new system answers far better than the old one. It was the new Factory Act which first directed our attention to the subject, and if the Act does even nothing in the tobacco factories beyond that, it will have accomplished one most humane reform.'[1] It is evident from this that the restriction on the hours of employment of children hastened the introduction of machinery, and so, eventually, not only did away with the labour of the little boys,[2] but resulted in converting a process requiring strength and skill into a simple process requiring no strength, but only attention to the machine, and this has resulted in the substitution of women for men as spinners.

The increase of women in the printing trade is chiefly due to the fact that owing to the difficulty of getting boys, girls are largely and rapidly taking the place of boys for feeding letterpress and lithographic machines in the large factories. There is also a tendency to increase the number of women employed in the setting of type in job printing works. On the other hand, women type distributors have been displaced owing to the introduction of the linotype machine.

In the making of tin canisters women are taking

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1. See *Reports of Inspectors of Factories, Parliamentary Papers*, 1868-9, vol. XXIV, p. 296.

2. Mr. W. H. Lord in his *Report on the Tobacco Manufacture in Lancashire, Parliamentary Papers*, 1865, XX, p. xxiii, says:—'The children employed are very young, the majority beginning work before nine years of age at Liverpool and Manchester.'

over work formerly done by men, owing to the cheapness of their labour. The same thing applies to rubber factories, where girls are now employed for stitching and roping heavy bales.

In a white lead factory men have been substituted for women for setting and drawing the stoves. This change took place before the legal prohibition of the employment of women in white lead. It was thought that this process was more suitable for men than for women, as the women's clothes got in the way and collected the white lead dust; they were thus more exposed to danger than men would have been. Another reason for dispensing with women in the stoves was to have an extra number of men, and thus relieve them from working so much in the white lead. By this means it was found possible to apply regulations under which men worked in the white beds only one day out of three.[1] Men have also been substituted for women in the casting of blue lead, as the employers considered the work was too heavy for women.

In every factory and workshop visited, care was taken to enquire whether the Factory Acts had in any way led to the displacement of women. The usual answer was to the effect that, so far from women being displaced by men, the reverse had usually been the case, and in the few cases where men had been substituted for women, the causes for this were in no way connected with the Factory Acts, but were due to other reasons, of which examples have already been given. The following were the only exceptions to this :—

(i) In a copper wire factory, where over a thousand men are employed, and which is kept working all night by shifts of men, the writer was told

1. See *Report from Departmental Committee on Lead Industries, Parliamentary Papers*, 1893, XVII, p. 5658.

that men have been substituted for women[1] as minders of machines used for twisting together thin copper wire with paper placed between, used for telephone wires, on account of not being able to employ the women after 7 p.m. The so-called 'men' turned out to be boys, few of whom were over eighteen. The room in which they are employed was a very large one, in which men were employed in the making of cables, and, as the result of further questioning, it appeared that one reason for the dismissal of the women was that it did not answer to have the men and women working in the same room. 'If the women had been in a separate room it might have been a different matter,' but the manager considered that the limitation of women's hours was the primary cause of their disuse. He thought that women ought to be allowed to work in shifts.

(ii) In the watch-making factory referred to before, men are now employed instead of women for 'case pinning,' and in some cases for 'hinge turning,' owing to the legal limitation of hours. But in spite of the this particular displacement of a few women by men, the census returns show that women are largely and rapidly being substituted for men in the watch-making industry. For whereas in 1891 women formed only 4·6 per cent. of the total number of watchmakers in Lancashire, within the last ten years this percentage has risen to 13·78 per cent.[2] This increase in the number of women employed is due to the rapid introduction of machinery.

1. About a dozen women were dismissed, but the trade has increased so much that there are now about seventy instead of twelve machines.

2. The actual figures are: for 1891, 2,704 males and 133 females; for 1901, 2,777 males and 444 females. The figures given in 1891 are for the Registration County, those in 1901 are for the Administrative County, but as the difference in population of the Administrative and Registration Counties of Lancashire is only a matter of 1·1 per cent., the figures can be used as they stand for proportional comparisons.

(iii) A printer who has a small factory said that were it not for the regulations as to overtime, he would employ girls instead of boys 'laying-on' at letterpress machines. When it was pointed out that the employment of boys is also under regulation, the employer gave as an additional reason for the non-employment of women that 'it would not do to have a few women in the printing room mixed up with the men.'

The information collected proves that, with the exception of two or three unimportant cases, the legal limitation of hours has no effect whatever in determining questions in connexion with the division of labour between men and women. In determining such matters the questions considered are the relative cheapness of men and women, their strength and capacity for doing the work, and the length of time which they are likely to remain in the trade.

(3) *Wages*

A considerable amount of information as to wages was collected, but little of it has any bearing on the effect of factory legislation, owing to the fact that the ordinary hours of work have, with a few exceptions, not been affected by the Acts. Moreover, in estimating changes in wages difficulty arises from the impossibility of getting figures to compare with the wages given at the present day, owing to the fact that wages books are destroyed after a few years, and little information of a definite nature can be obtained for past years beyond that given in various Parliamentary Reports.

In the tobacco factories the wages vary considerably. The cigar makers are invariably apprenticed for seven years, and begin at a weekly wage of 2s. or 2s. 6d. per week. They are afterwards put upon piece work, but, until out of their apprenticeship, are paid at about

half the rate which would be paid to a journeywoman for the same work. For mould-made cigars journeywomen are paid at rates varying from 4d. to 2s. per hundred, according to the quality of the cigar. Hand-made cigars are paid for at a higher rate. The earnings vary from 10s. to 30s., and in some factories experienced cigar makers can earn up to £2 a week.

For cigarettes, apprentices are paid from 1s. 8d. to 2s. 6d. per thousand, and journeywomen from 2s. to 2s. 10d.

Spinners of roll tobacco average about 14s. a week. Some are paid by piece, some by time. In one factory the spinners are paid a standing wage of 10s. a week, and a premium upon all they spin in addition to a certain fixed quantity. In this way they make from 15s. to 17s. a week. Bundlers and sorters are paid a standing wage of from 10s. to 15s. Strippers earn from 7s. 6d. to 10s. a week. In some of the tobacco factories the wages have risen with the adoption of the piece work system. Mr. H. W. Lord, who collected evidence for the Children's Employment Commission on the Tobacco Manufacture in Lancashire, stated that cigar makers were paid 2s. a week during the first year, and afterwards were paid so much per hundred for what they made—'6d. during the second year, 7d. during the third, and so on; some in their third year, or at seventeen years of age, 8s. and 10s.; while others who are slow, careless, or idle may not earn more than 3s. Several girls in the sixth year of their apprenticeship had earned 17s. and £1 in the week before I visited the manufactory in which they were employed.'[1]

The strippers at that period were little children, who earned 2s. or 2s. 6d, a week, and the older ones at the same employment earned from 4s. to 6s.

1. *Parliamentary Papers*, 1865, XX, p. 89.

Miss Collet collected information as to the wages of over 1,400 women and girls in cigar and tobacco industries in Liverpool, and she gives the following table :—

Under 6s.	6s. to 8s.	8s. to 10s.	10s. to 12s.	12s. to 15s.	15s. to 18s.	18s. to 21s.	21s. to 36s.
33·8	19·0	15·1	13·5	7·1	3·3	2·0	1·2

Miss Collet was not able to get particulars to show the difference of earnings in different departments for the whole 1,400 to whom the above table refers, but the tables given below relate to several hundred persons, and are based upon figures taken from the wage books by Miss Collet[1] :—

	Percentage of Women and Girls earning						
	Under 6s.	6s. to 8s.	8s. to 10s.	10s. to 12s.	12s. to 15s.	15s. to 18s.	18s. and upwards
Cigar Makers -	10·1	13·0	18·6	18·4	19·0	10·8	10·1
Cigarette Makers -	44·3	22·1	16·9	5·7	3·5	2·9	4·6
Strippers, Spinners, Bundlers, etc. -	32·3	16·1	17·6	26·3	6·7	1·0	...

Ropemaking. According to the *Returns of Wages*[2]

1. *Parliamentary Papers*, 1893, XXXVII, pt. I, p. 615.
2. *Returns of Wages*, 1830 to 1886. *Parliamentary Papers*, 1887, LXXXIX, p. 262.

in 1880, the average rates in Liverpool for 56½ hours work were as follows :—

	Women	Girls
Hemp Dressers - - -	11s.	9s.
Ropeyarn Spinners - -	12s. 6d.	5s. to 12s.
Labourers and odd hands -	9s. to 12s.	5s. to 8s.

Miss Collet gives the following table showing the wages in a particular factory :—

	Under 6s.	6s. to 8s.	8s. to 10s.	10s. to 12s.	12s. and upwards
Percentage of Women and Girls earning - -	15·5	30·0	4·5	33·3	16·7

In two ropeworks visited the wages books were shown.

Factory No. 1 (where over a hundred women were employed).[2]

Process	No. of Women employed	Wages	Average
Preparing Machines -	50	6s. 9d. to 18s. 1½d.	about 10s.
Machine Spinning - -	50	8s. 9d. to 17s. 3d.	12s. for full time
Carding - - -	8	6s. 9½d. to 11s. 7½d.	8s. 2½d.
Spinning Green Hemp -	6	9s. 1d. to 11s. 9d.	9s. 7½d.
Opening Knots - -	?	4s. 8d. to 7s. 5d.	6s. 10½d.
Hand Spinning - -	?	...	about 13s.

2. The wages were for an average week in December, 1901.

At another ropeworks, where fewer women were employed, the wages were as follows :—

	Below 6s.	6s. to 8s.	8s. to 10s.	10s. to 12s.	12s. and upwards
Percentage of Women and Girls earning - - - -	39	19	11	11	20

The average wage received was 7s. 1½d., but might have been higher if the women had come more regularly. The time-book showed that only 17 per cent. had worked five-and-a-half days in the week for which the above wages were paid.

In sackmending the wages of the women in the early sixties used to be 7s. a week in all the Liverpool warehouses. A few years ago the wages were raised to 9s., and old hands sometimes get 10s. In several warehouses the women have quite recently been put upon piece work, and get 1s. for mending one hundred sacks. The result of this is said to be better wages and an increased output. The actual wages paid are lower than they might be owing to the great irregularity of the women.

No information could be got as to wages in the jute industry.

In the manufacture of lint the piece work rates have remained the same for the last twenty years, but the earnings have risen owing to improvements in machinery. The earnings of the women vary very much, and range from 7s. to 16s. a week.

It is said that the reduction of one hour by the Act of 1901 in textile factories has made no difference in wages which are paid by time, and no perceptible difference in piece work earnings. In some factories the machines are kept going the same number of hours as before ; the only difference being that half-an-hour

instead of one hour is spent in cleaning the machinery.

In the bookbinding and stationery trade employers agreed that wages have risen during the last thirty years. In one firm where, in 1863, folders and stitchers used to make from 8s. to 10s. at piece work,[1] they are now paid by time and can rise to 14s. or 15s. In most of the small firms the wages are lower than this, and the maximum wage is often not more than 10s. or 12s. In other firms where they used to be paid by time they are now paid by piece, and can earn more than formerly.

In paper bag making the girls begin at 2s. 6d. a week, and experienced girls can earn up to 14s. a week.

In a large soap factory the wages of the girls ranged from 5s. to 15s. 6d. The manager thinks that there has been a rise of 12 per cent. during the last thirty years. The average of all the girls was 11s. a week. Overlookers are paid 13s. a week. The machine girls earn from 9s. to 12s. The highest wage was paid to the piece work 'dozening'[2] girls, who all earn 15s. 6d.

In another large soap factory the wages ranged from 8s. to 14s. The average appeared to be about 9s. The highest wages were earned by girls who wrap and pack toilet soap. They earn from 11s. to 14s.

In confectionery the girls begin at 4s., 5s., and in one case 6s. a week. They are paid by piece or time, according to the nature of the work. The quickest and most experienced girls, when working full time, can earn up to 14s., 16s., or even 18s. a week, but the average earnings do not appear to be more than 8s. or 9s.

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1. *Fifth Report of Children's Employment Commission*, 1866. XXIV., p. 69.
2. 'Dozening' consists in packing a dozen packets of soap into wooden boxes.

In lucifer match-making factories the girls begin at 5s. or 6s. a week, and are afterwards put on piece work. In one factory it was said that they can earn anything up to 26s. a week, but that the average would be about 12s.

In india-rubber factories girls begin at 1d. an hour, or 4s. or 5s. a week, and when on piece work can rise to 10s. and 13s., but it is said that the majority of girls are satisfied with 10s. In one india-rubber factory the wages are higher than the average. The manager says that earnings have risen, while piece rates have remained stationary, and he attributes the rise to the good conditions of work, which enable the firm to attract a better class of girls. In a recent week some women had earned 17s., 16s. 9½d., 16s. 5d., 16s. 3d., 14s. In a busy week in July some women had earned 18s. 10d., 18s. 9½d., 18s. 8d., 17s. 8½d., 17s. 6d., 17s. 3½d., 17s. 2d., 16s. 6½d., 15s. 10½d., and three women had earned £1 8s. 2d. each.

In another factory, a girl, who had been employed for six years, was stitching and roping bales for 7s. a week, and her sister of seventeen was getting only 4s. for the same work.

In the making of tin canisters the wages are very low. A glance at the wages book at one factory showed that the average was about 5s. 6d. or 6s. The employer said that if the girls would come regularly they could easily earn from 13s. to 16s., or more. He complained that the girls were satisfied with 8s. a week, and that if a girl made 12s. in one week she would not turn up till the end of the following week. 'If you want them to be regular the only thing is to cut them down in wages.'

The following wages were earned by girls employed

in dry cleaning and dyeing in normal weeks in 1892 and 1902 :—

	Hours	Below 6s.	6s. to 8s.	8s. to 10s.	10s. to 12s.	12s. to 14s.	14s. to 16s.	16s. and upwards	Average
1892 Percentage of Women and Girls earning - -	54	9	12	29	16	9	18	7	10s.[1]
1902 Percentage of Women and Girls earning - -	48	0	21	14	22	23	26	14	12s. 6d.[2]

In the upholstery trade apprentices receive 2s. 6d. during the first year, 3s. 6d. during the second year, 4s. 6d. during the third year, and not less than 6s. 6d. during the fourth year. During the last ten years the upholstresses have, by trade union[3] action, succeeded in raising their wages from 10s. to 14s. a week; and all those who have served their four years apprenticeship now receive 14s. The machinists usually get 15s. Overtime is paid for at the rate of time and a quarter.

The carpet sewers are paid by piece, and earn about 10s. when working full time; but they are often slack and cannot make more than 4s. or 5s. a week.

In the wholesale clothing firms girls are apprenticed for periods varying from six months to two years, and begin work at 2s. or 2s. 6d. a week.

Miss Collet gives the following table for wages for 200 women and girls in the clothing trade.[1]

1. The wages ranged from 5s. to 21s.
2. The wages ranged from 7s. 2d. to 28s.
3. The union now numbers 105 members, and pays 5s. a week for eight weeks for 'out-of-work' and 'sick' pay. Few upholstresses in Liverpool are outside the union.

1. *Parliamentary Papers*, 1893, XXXVII, pt. I, p. 619.

	Under 6s.	6s. to 8s.	8s. to 10s.	10s. to 12s.	12s. to 15s.	15s. to 18s.	18s. and upwards
Percentage of Women and Girls earning -	26·2	12·8	13·9	12·8	18·8	9·6	5·9

In one factory the wages of forty-two girls were given for a normal week in 1898.

	Under 6s.	6s. to 8s.	8s. to 10s.	10s. to 12s.	12s. to 14s.	14s. to 16s.	16s. to 18s.	18s. and upwards	Average
Percentage of Women and Girls earning -	11·1	15·6	38·0	7·1	19·0	0	4·7	2·8	9s. 2¼d.

In a large wholesale clothing firm the wages thirty years ago were from 8s. to 10s. (time work). No one was paid more than 13s. The following tables show the wages at the same factory for a slack and a busy week in 1876 and in 1886 :—

	Under 6s.	6s. to 8s.	8s. to 10s.	10s. to 12s.	12s. to 14s.	14s. to 16s.	16s. and upwards	Average
1876 Slack week Percentage earning - -	27	13	35	21	0	2	2	8s. 4d.
Busy week -	11	17	21	23	17	4	7	10s.
1886 Slack week -	25	11	13	20	22	9	0	10s.
Busy week -	21	9	9	27	20	5	9	11s.

Tailoring is carried on largely in small workshops and in the homes of the workers.[1] In spite of the longer hours the wages are lower than in the factories. One of the Inspectors reported, in 1888, that the wages of outworkers in the tailoring trade were not so low as was commonly supposed. In one workshop, where work was done for one of the largest ready-made clothiers in Liverpool, with one exception every woman was receiving 4s. a day. In workshops where cheaper goods were made, the female fellers and button-holers received from 1s. 3d. to 4s. a day, and the machinists 4s.

A Jew, who was taking out work from a large wholesale clothing factory, gave the present writer a list of wages paid to his employees for the week ending July 12, 1902. The girls were all paid by time. Three 'basters' received 8s. 3d. each; one buttonhole hand received £1 3s. 10½d. The wages of the others were 17s. 10½d, 13s., 12s., 8s. 3d., 8s., 6s. 9d., 6s. 7d., 5s., 2s. 6d., 2s. 6d. The employer said that most of these girls were under eighteen. The rate of wages varies from 1s. 9d. to 4s. 6d. a day, but the girls do not come regularly, otherwise they would make better wages. In this workshop they do not work on Saturdays and Sundays.

Miss Collet gives the following as the rate of payment for outworkers working in their own homes :—

Serge jackets, 4s. 6d. to 6s. 6d. a dozen, or 2¼d. to 4¼d. per hour.[2]

Shirts, from 1s. 5d. to 5s. a dozen, or 1½d. to 3¾d. per hour.

Trouser finishing, 2s. a dozen, or 2d. per hour.

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1. Outwork is almost unknown in Liverpool, except in tailoring and shirt making. The total number of outworkers on the lists in 1900 was 653, of whom 625 were engaged in tailoring. 1901, X, p. 52.

2. The rates per hour are calculated from the statements of witnesses as to how much could be earned by them if they worked steadily for any length of time.

The list of wages paid to fifty-one outworkers engaged in making serge jackets, shirts, waistcoats, and trousers for a large factory was obtained for the week ending July 12, 1902 :—

	Under 6s.	6s. to 8s.	8s. to 10s.	10s. to 12s.	12s. to 14s.	14s. to 16s.	16s. and upwards
Percentage earning-	15	10	12	19	14	14	16

In comparing the above with the wages paid for work done inside the factory, it must be remembered that in many cases the outworker is assisted by other members of the family. so that the wages represent those of more than fifty-one persons. This accounts for the large percentage receiving 12s. and upwards.

The general opinion with regard to wages is that they have risen, and that if more overtime were allowed the wages in particular weeks might be higher, but that taking the whole year round, the wages are as high as they would otherwise be,[1] owing to the fact that trade is more regular ; and that with the shorter hours the output per hour is greater. The figures given prove nothing definite with regard to the effects of factory legislation on wages, but they do at least show that it does not follow that a reduction in the hours of work is followed by reduced wages. The manager of a large factory, who disapproves of the restriction on hours of work imposed by the Act of 1901,[2] while giving no information as to changes in

1. It is interesting, in this connection, to note that in the trade in which most use is made of the permission to work overtime—namely, dressmaking—no extra wages are paid for overtime.

2. 1 Ewd. VII., c. 22, sec. 41 (*b*).

wages, stated as a self-evident fact that 'of course the longer the women work the more they earn; . . . when you reduce hours you reduce wages.' Such a statement may appear to need no proof, but the facts as to changes in wages prove that the relation between hours and earnings is by no means so simple. When a definite limit is placed upon the hours of work all kinds of tendencies are brought into play which counteract the otherwise necessary reduction in wages. Greater regularity in the work probably results in the wages per year being as great as they would otherwise have been, whilst the stimulus given to the employer to introduce labour-saving processes, the increased efficiency of the workers, and the fact that improved conditions call forth a better class of workers, all these influences may be at work with the probable result that wages will rise rather than fall with shorter hours.

(4) *The Introduction of Machinery*

With regard to the introduction of machinery, it is difficult to get any definite information. If asked whether this can in any way be traced to factory legislation, employers usually reply that the introduction has been entirely due to trade competition, but from the fact that in a few cases where the Factory Acts have been felt as restrictive, machinery has in consequence been introduced, it is safe to say that, whenever the restrictions as to hours are felt, the tendency is for the introduction of labour-saving processes to be hastened in small firms, where it might otherwise be delayed.

Reference has already been made to the introduction of steam power to turn the spinning wheels

in the tobacco factories, which followed directly from the limitation of the hours of work of children.[1] It did not pay the employers to employ any but the cheapest labour for such unskilled work, and the result was that when restrictions were placed upon the employment of children, employers were driven to introduce machinery to do the work formerly done by children.

Precisely the same result followed from the Act of 1864 in lucifer match factories. In 1865, one of the inspectors noticed the large number of little children in lucifer match factories in proportion to the number of other persons employed. Men were employed as dippers and as overlookers, women and girls as packers, and the youngest children were employed to place the matches into what are technically known as 'clamps,' that is, the frames containing the splints ready for dipping. Redgrave, referring in 1865 to the new Act, placing restrictions on the employment of child labour, said:—'I have no doubt there will be a considerable alteration in the processes of the manufacture by the time the Act comes fully into operation, and when children must attend school for half the day: for already in some factories the frames or "clamps" are filled with splints by a machine, managed by an older hand, with great rapidity, and, I have been informed, more economically than under the old system.'[2]

At the present day the most complicated American machinery is in use in some lucifer match works. The same machine cuts the wood into splints, dips the splints into phosphorus, dries and boxes the matches. The hand labour consists merely in feeding the

1. See *Reports of Inspectors of Factories*, 1868-9. Vol. XIV., p. 296.
2. *Parliamentary Papers*, 1865. XX., p. 444.

machines and in placing the match boxes into their outer covers. This machinery has evidently been introduced owing to trade competition, but there is no doubt that the special rules in force with regard to lucifer match factories have, to some extent, stimulated the introduction of machinery which reduces the danger of phosphorus poisoning to a minimum.

In some industries machinery has been introduced to obviate the inconvenience arising from the restriction on overtime employment. This is especially noticeable in letterpress printing works. One of the Inspectors, in 1868, noticed the fact that newspapers and periodicals used to be folded during the night, and the report for that year states 'Some of the work is now done during the day, and in other cases folding machines have been introduced.'[1]

An instance of this was given to the present writer in the case of a small printing works, where the employer complained that in order to avoid employing girls overtime he had been obliged to lay out £200 on a folding machine. By means of this machine they have now no difficulty in keeping within the legal limit as to hours.

In another factory extra machinery was introduced after fines had been imposed for the illegal overtime employment of girls. The manager complained that they had been put to great expense, and that during slack times many of the machines stand idle.

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1. *Parliamentary Papers*, 1868-9, XIV, p. 132. For other evidence on this point, see *Parliamentary Papers* 1867-8, XVII, p. 202 ; 1868-9, XIV, p. 363.

Redgrave reported as follows :—

'After the first Factory Act of 1833, some diminution of production was experienced, but in every instance since that date the restriction of the hours of labour in textile factories has not been followed by reduced production ; for, either by the adoption of improved machinery, or where more depends upon the operative, by his increased attention and activity, the loss has not been felt ; but so great a spur has been given to making up the reduction in time that the amount of goods produced has actually increased.'—*Report of Inspector of Factories*, 1866, XXIV, p. 263.

In a tin factory a soldering machine was introduced a year ago, in consequence of the necessity of avoiding overtime. As the machine has to be worked by a man, it is never used except when necessary to obviate overtime.

These are but single instances of a tendency which must be at work wherever employers are precluded from competing with one another by means of long hours and low wages. The only resource then left to them is to compete by means of improved methods of carrying on the industry. The competition then assumes an upward instead of a downward tendency.

(5) *Special Rules for Dangerous Trades and Sanitary Regulations*

Perhaps the regulations which press most heavily upon small employers are the special rules for dangerous trades.

In a large match factory, a paint factory, a white lead factory, and a factory where cleaning and dyeing is carried on, the employers stated that they had no complaints to make about the special rules. In many cases the rules merely enforced what was customary before; in all these cases testimony was borne to the beneficial effects of the precautions taken.

But in the smaller factories and workshops serious complaints were made. One lucifer match maker complained that they were so harassed by Government that trade was being driven out of the country, and that he knew of several small match factories which had had to 'shut up' altogether. In the Chief Inspector's report for 1901 an instance is given of a brass foundry which was closed because the occupier found

that the cost of complying with the rules would be 'out of all proportion to the benefits gained.'[1]

The enamelling of copper letters and discs is a trade to which special rules have been applied only within the last eighteen months, owing to the fact that some cases of lead poisoning led to the discovery that the enamel and powders in use contain lead.[2]

This industry is carried on in small workshops, and is almost entirely a woman's trade. The employers complain that they have been put to great expense in being compelled to put in ventilating flues, provide overalls, and have a doctor to attend at the workshop. The special rules were referred to as a 'new fad.' 'The Government wants to force us to shut up altogether.' One employer naïvely confessed that he had the factory inspector to 'contend with,' and that this hampered trade. In order to escape the necessity of having a doctor one employer has substituted what is considered to be a leadless glaze.

With these few exceptions, the universal opinion is that the special rules for dangerous and unhealthy trades and the sanitary regulations have been most beneficial, and have increased the efficiency of women workers, especially in dust-generating processes, such as the manufacture of dry soap. The employer in one of the largest tobacco factories gave evidence before the Commissioners of 1864, that he had almost despaired of being able to employ women until certain alterations, allowing ventilation, had been made in the factory.[3]

The inspection of workshops in Liverpool appears to be carried on in a very efficient manner by three

1. P. 166.

2. See *Report of H.M. Chief Inspector of Factories for* 1900, *Parliamentary Papers*, 1901, X, pp. 307 and 308. See also 1902, Cd. 1112, p. 117.

3. *Report on Tobacco Manufacture in Lancashire*, by H. W. Lord, 1865, XX, p. 90.

special inspectors (men). There are about three thousand workshops on the register; and some of the worst tailors' workshops are visited every fortnight. One of the inspectors of workshops said he had heard of cases in which the enforcement of the sanitary regulations had led to the dismissal of women from workshops in which women were in a small minority. In the only case of which he could recall the circumstances two girls were dismissed, but the employer gave them work to do in their own homes.

There was a general consensus of opinion that the sanitary regulations have tended to increase the efficiency of women workers, and, in some cases, to draw a better class of workers into employment. In these, as in other classes of regulations, it is the small employers who feel the burden of the enforcement of a legal minimum of conditions as to hours, sanitation, and safety.

Conclusion

The evidence collected seems to point clearly to the fact that in Liverpool factory legislation has had but little real effect upon the ordinary or normal hours of work or on wages, and that the distribution of employment between men and women has not been affected thereby. The most far-reaching result has been to place a premium upon the large employer of labour who can afford to lay out the capital required to introduce improved methods of industry, labour-saving machines, and large premises with accommodation for additional workers in the busy seasons, and can offer such wages as will induce a superior class of workers to enter his employ.

The English code of factory legislation imposes a bare minimum of requirements as to conditions of labour. The majority of large employers have long ago gone beyond this minimum. In some few cases this may be due to a genuine care for the welfare of the employed, in some cases it may spring from a more or less conscious recognition that the efficiency of labour is thereby improved, and that the employer who offers better conditions is able to attract a higher class of labour. Again, in many trades the customary working day for women has been reduced by the action of the men's trade union regulations. But perhaps the comparatively short hours prevalent in large factories and workshops are chiefly to be accounted for by the use of highly specialized machinery, the result of which is that employers find it more economical to equalize working hours for a large number of hands, or to employ the operatives in shifts,

than to work a smaller number for irregular or very long hours. At a certain stage in the development of machinery, and within certain limits, it may be true that the maximum return for the fixed capital is obtained by extending the hours of work, but this does not necessarily involve an extension of the working day for individuals. As the machinery becomes more highly specialized, the working expenses of a factory form so large a proportion of the total cost of production that unless there is sufficient work to utilize the whole of the machinery,[1] and unless the operatives are maintained in the highest state of efficiency, the returns on the fixed capital begin to diminish, and it is found to be the worst economy to work long hours in order to save the wages of a few extra hands.

The cost of motive power, electric light, and general supervision does not vary in direct proportion to the size of the business, and thus it is that the small employer who cannot avail himself of these economies of production finds it a great strain to comply with factory act requirements. The observance of special rules for dangerous trades, for instance, may be a serious expense, and may even involve structural alterations in a small workshop, whilst in a large factory the pressure is sometimes met by such a complete metamorphosis of process that all contact with the injurious substance may be avoided, and a simple and harmless process be substituted for a dangerous one requiring special precautions.[2]

Such developments necessarily involve an enormous outlay of capital, and the competition is severely felt by the smaller firms. Too often their only means of self-

1. See Marshall, *Principles*, vol. I, p. 345. 'The efficiency of specialized machinery or specialized skill is but one condition of its economic use, the other is that sufficient work should be found to keep it well employed.'

2. At least one instance of this was found in Liverpool.

defence is to employ cheap labour for long hours, and there is no limit to which this might not be pushed were it not that the State steps in and prescribes a definite standard, compliance with which acts as a sort of certificate of competence and capacity to employ labour. Those who fall below the mark are inevitably crushed out and forced to make room for others. This involves a temporary hardship to individuals, but the progress of industry demands that efficiency should be maintained, and this cannot be done if the responsibilities of management are allowed to fall into the hands of the unfit. The enforcement of factory act regulations thus acts as a process of selection, the result of which is to stimulate competition on the upward grade.

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